

## **REMARKS**

Currently, claims 28-61, including independent claims 28 and 47, are pending in the present application. Independent claim 28, for instance, is directed to a method of utilizing a triggerably releasable delivery system in the treatment of a patient. The method comprises administering to a patient a plurality of nanoparticles containing alumina and having a size of about 500 nanometers or less. The nanoparticles are bonded to a functional compound, and possess a positive surface charge, i.e., a zeta potential of about 20 millivolts or more. The functional compound is released from the surface of the nanoparticles upon exposure to an environmental or chemical condition.

In the Office Action, previous claims 1-7, 10, 14-17, 20, 24, and 26 were rejected under 35 U.S.C. §102(b) as being anticipated by U.S. Patent No. 6,007,795 to Masterman, et al. Masterman, et al. is directed to a method for inhibiting bacteria in the mouth of a patient. The method includes placing a particle containing a degradable material and an anti-microbial agent into the mouth of a patient, wherein the material degrades and releases the anti-microbial agent. In one embodiment, the degradable material (e.g., polylactic acid) may be included in an organic/inorganic composite. However, Masterman, et al. fails to disclose various limitations of independent claims 28 and 47. Nowhere, for example, does Masterman, et al. disclose nanoparticles having a size of about 500 nanometers or less, wherein the nanoparticles are bonded to a functional compound and possess a zeta potential of about 20 millivolts or more.

In addition, previous claims 1-8, 10-18, 20-24, and 26 were also rejected under 35 U.S.C. §103(a) as being obvious over U.S. Patent Application Publication No. 2003/0082237 to Cha in view of the "Merck Index publication." Cha is directed to a

nanoparticle three-dimensional composite structure, such as inorganic vesicles or hollow spheres. However, Cha fails to disclose various aspects of independent claims 28 and 47, such as the use of nanoparticles that are bonded to a functional compound and possess a zeta potential of about 20 millivolts or more. The “Merck Index publication”, which was cited in the Office Action only for the teaching of certain functional compounds, fails to cure any of the deficiencies of Cha noted above.

Applicants emphasize that none of the cited references recognize the benefits achieved according to the present claims. Namely, the functionalized nanoparticles of the present claims may retain a positive surface charge, which can provide a variety of benefits. For example, the nanoparticles may better adhere to substrates that carry a negative surface charge *via* coulombic attraction. Consequently, a functional compound may be affixed to the substrate without the use of chemical binders or other attachment structures. Further, the nanoparticles may also better adhere to skin, mucosal membranes, etc. due to their high zeta potential. Thus, for at least the reasons set forth above, Applicants respectfully submit that the present claims patentably define over the cited references, taken singularly or in any proper combination.

Applicants respectfully submit that the present application is in complete condition for allowance and favorable action, therefore, is respectfully requested. Examiner Stitzel is invited and encouraged to telephone the undersigned, however, should any issues remain after consideration of this Amendment.

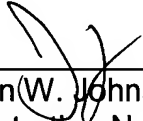
Please charge any additional fees required by this Amendment to Deposit Account No. 04-1403.

Appl. No. 10/731,256  
Amdt. dated Dec. 21, 2006  
Reply to Office Action of Jul. 31, 2006



Respectfully requested,

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